REMARKS

Twenty-one claims (15, 17, 18, 23, 27-31, 33, 34, 37, 38, 41, and 43-49) are pending after amendments. Claims 15 and 34 have been extensively amended to distinctly claim the subject matter of the present invention; claims 17, 18, 23, 27, 37, 38, 41 and 43-49 have been amended to conform with the amendments made to claims 15 and 34 or correct formality issues. Claims 16, 19-22, 24-26, 32, 35, 36, 39, 40 and 42 have been cancelled without prejudice. The amendments are supported by the originally filed claims and description, e.g., [0037]-[0053]; [0071]. No new matter has been introduced.

Claim 36 stands objected to for grammatical error of "plurality of island"

The examiner objects claim 36 for containing a grammatical error and kindly suggests that the "plurality of island" be substituted with the "plurality of islands". Claim 36 has been cancelled; thus this objection is moot.

Claims 15, 16-33, and 42 stand rejected under 35 U.S.C. 112, Second paragraph

The examiner rejects claims 15, 24 and 42 under 35 U.S.C. 112, second paragraph for containing the limitation of "substantially the same", rendering the claims as vague and indefinite; and claims 16-33 are dependent from claim 15. The examiner kindly suggests that the limitation be amended into "identical". Claims 24 and 42 have been cancelled; claim 15 has been amended the limitation of "substantially the same" to "the same". Applicant respectfully submits that this amendment overcomes the rejection.

Claims 15, 16, 19-36, and 39-49 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Challener (WO 03/083601 A2) in view of Rappaport et al. (US 2003/0023412 A1)

The Examiner has rejected claims 15, 16, 19-36 and 39-49 as being unpatentable over Challener in view of Rappaport. In essence, the examiner alleges that Challener and Rappaport disclose all claimed subject matters if they are combined and further that the

proposed combination is obvious to one skilled in the art. For the reasons discussed in detail hereinbelow, applicant respectfully traverses this rejection.

1. The claimed invention

Claim 1 as the representative of all claims (15, 23, 27-34, 41, 43-49) is directed to a method for detecting and geographically locating a rogue user accessing a wireless computer network wirelessly, where the wireless computer network comprises a server computer system and a plurality of wireless access points via which a wireless computer workstation accesses the server computer system. The method comprises deploying a Network Management System (NMS) into the server computer system for collecting Media Access Control (MAC), Internet Protocol (IP) addresses of computer workstations and access points connected onto the network, and the performance characteristics of the computer workstations and access points; detecting a rogue user by comparing the collected MAC and IP addresses with a reference set of valid addresses of authorized users, wherein a user with addresses not on the reference set is considered as the rogue user; determining the nearest wireless access point serving the rogue user by performing a logical AND operation between the collected IP address and the subnet mask of the rogue user; determining the geographical location of the rogue user with reference to the nearest wireless access point by a ranking algorithm that derives at least one performance index for the rogue user from the collected performance characteristics of the rogue user and compares the performance index of the rogue user with the average of the reference performance indices of each island mapped near the nearest access point in a spatial performance model pertinent to the time of day of detection; wherein the spatial performance model having a plurality of islands is constructed dynamically by collecting and mapping out the performance characteristics of wireless computer workstations in the plurality of islands in the area covered by the wireless access points of the network; measuring at least one network performance parameter of the performance characteristics for each island, wherein each island shares the same performance characteristics; and deriving a performance index for each island based on the at least one performance parameter to obtain the spatial performance model; and alerting the administer of the network for taking security measures against the located rogue user.

As highlighted by the above underlines, the claimed invention detects and locates a rogue wireless user by constructing a spatial performance model with a plurality of islands, determining the nearest access point of the rogue user and then locating the rogue user by comparing the performance index between the rogue user and each island covered by the nearest access point. As also pointed out in the description (e.g., [0071], [0072]), in the prior art, any rogue user accessing the network may be identified by his MaC and IP addresses; however, the spatial performance model of the present invention is used to locate the rogue user by matching the performance characteristics of his computer with that of the island with the same or substantially the same performance characteristics. The claimed subject matters of the present invention have not been taught or suggested by the cited references even if they are impermissibly combined.

2. Examiner fails to establish a Prima Facie case of obviousness

1) Challener

The examiner alleges that Challener discloses a method for detecting and geographically locating a user accessing a wireless computer network wirelessly, the method comprising: pre-collecting and pre-mapping performance parameters of wireless computers with respect to at least one access point within a geographical area covered by the wireless computer network; -Challener, page 5, lines 16 though 18, the area around an access point is an island and helps determine the geographical locations of rogue user; identifying the user based at least on a Media Access Control (MAC) address and Internet Protocol (IP) address; -Challener, page 11, lines 26 and 27, both MAC address and IP address are used; but fails to disclose explicitly obtaining a spatial performance model for the geographical area based on the collected performance parameters, the spatial performance model is defined by a plurality of islands, each island shares substantially the same performance parameters; acquiring at least one performance parameter of the user; mapping and matching the at least one performance parameter acquired for the user on the spatial performance model to identify the matched island; and identifying a geographical location of the user through the matched island.

However, Challener discloses methods, apparatus and program products that monitor wireless access points, identify an unauthorized access point, and respond to

monitored data flow. See, Abstract. More specifically, the products disclosed in Challener enable a network administrator to identify the presence of a rogue, or unauthorized, access point, to determine the geographic location of an unauthorized access point, and to control the activity of a rogue access point. See, Page 5, lines 15-20.

As disclosed by Challener, a network 10 comprises a server computer system 11, a plurality of authorized access points 12, and a plurality of workstation computer systems 14, where the workstation computers access the server computer system via the access points. See, Figure 1; page 7, lines 20-25. For detection of an access point, monitoring software such as Net Stumbler is installed in the workstation; See, page 8, lines 11-21. When the workstation reports to the server, the server compares the reported information to the list of authorized access points and thereby identifies any rogue access point; see, page 9, lines 18-25. The location of the identified rogue access point is determined by analysis of the signal strengths of the reported access points. See, page 10, lines 1-5.

It is noteworthy that Challener is about detection and location of an access point (middle layer in the network architecture); in contrast, the present invention is about detection and location of a rogue user (bottom layer in the network architecture). Because the issues addressed by Challener and the present invention are different, their solutions are completely different; more specifically, Challener locates the rogue access point by analysis of the signal strengths of the reported access points without further manipulating the data of the signal strengths from the reported access points; in contrast, the claimed subject matters of the present invention locate the rogue access using a spatial performance model that comprises a plurality of islands within the covered area by the network. Furthermore, Challener fails to support the examiner's allegation that Challener discloses the use of the plurality of islands as claimed in the present invention. In short, Challener is directed to a completely different issue using a complete different approach; thus Challener fails to teach or suggest the claimed subject matters of the present invention, for example, the identification of the nearest access point of a rogue user and the use of a spatial performance model with a plurality of islands.

2) Rappaport

The examiner explicitly concedes that Challener fails to disclose the spatial performance model as claimed in the present invention. Then the examiner alleges that Rappaport discloses a spatial performance model as claimed in the present invention; so that the combination of Challener and Rappaport would render the present invention obvious.

More specifically, the examiner alleges that "Rappaport discloses obtaining a spatial performance model for the geographical area based on the collected performance parameters, the spatial performance model is defined by a plurality of islands, each island shares substantially the same performance parameters; -Rappaport, page 11, paragraph 98, lines 3, 20, the signal strength is one of the parameters used to create models page 11, paragraph 98, lines 38, performance parameters are used as indices." The examiner further alleges that "Acquiring at least one performance parameter of the user; mapping and matching the at least one performance parameter acquired for the user on the spatial performance model to identify the matched island; and identifying a geographical location of the user through the matched island. – Rappaport, page 11, paragraph 98, lines 38, performance parameters are used as indices, if parameter is out of range system is triggered, page 11, paragraph 98, lines 20, the signal strength is one of the performance parameters, performance parameters are used as indices, if parameter is out of range system is triggered, page 10 paragraph 96, lines 17 through 21, average and worst-case of metrics are retrieved."

Contrary to the examiner's allegation, Rappaport discloses a three-dimensional digital model of the physical environment that combines outdoor terrain elevation and land-use information, building placements, heights and geometries of the interior structure of buildings, along with site-specific models of components that are distributed spatially within a physical environment. See, Abstract. The three-dimensional digital model is incorporated with as many as parameters in order to accurately represent the physical environment. More specifically, Rappaport teaches that the three-dimensional building exterior geometry information is merged with the three-dimensional TIN surface representation of the terrain to form a single, composite representation of a given

geographical areas (see, [0077]), and then the internal structure of any desired building can be merged within the same database (see [0079]), enabling the user to interactively visualize and place models of telecommunication system components within the three-dimensional structure of any portion of the composite representation of the environment from any angle or orientation (see [0080]). Rappaport further discloses that for the purpose of asset management, a combined environmental and infrastructure model is created by embedding the modeled infrastructure and the associated infrastructure information for each component in the environmental model in a site-specific manner (see [0092]).

As for [0098] cited by examiner for supporting the allegation made, it teaches that the combined environmental and infrastructure models may contain models of infrastructure equipment that can communicate and exchange data with a computing platform in real-time; enabling the invention to measure, predict, display, aggregate, and store equipment performance. It further teaches that the invention may store desired network operating performance parameters that are communicated to certain pieces of actual equipment, and if the equipment ever measures the network performance and finds the performance parameters out of range, an alarm is triggered and reported to the invention for display, storage, processing and possible remote returning of pieces of equipment by the invention to readjust the network to move performance back into the desired range.

It is true that many performance parameters are mentioned in [0098], and the combined environmental and infrastructure models provide convenience for visualizing the equipment within the environment. Simply put, Rappaport fails to teach or suggest that any performance parameter is grouped into islands within the covered area of any network based on their performance characteristics as claimed in the present invention.

3) Combination of Challener and Rappaport

The examiner fails to show how and why Challener and Rappaport are combined to reach the claimed subject matters of the present invention.

Even if Challener and Rappaport are impermissibly combined, for the sake of argument, they fail to teach or suggest all claimed features of the present invention. For

example, as discussed above, the claimed spatial performance model comprises a plurality of islands, each island shares the same performance characteristics. Neither Challener or Rappaport teaches or suggests such a spatial performance model. Therefore, applicant respectfully submits that the examiner fails to establish a *prima facie* case of obviousness to claims 15, 23, 27-34, 41, 43-49 over Challener in view of Rappaport.

Claims 17, 18, 37, and 38 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Challener in view of Rappaport and further in view of Agrawal et al. (US 2003/0045270A1)

The examiner rejects claims 17-18 and 37-38 under 35 U.S.C. 103(a) as being unpatentable over Challener in view of Rappaport and further in view of Agrawal. In essence, the examiner alleges that Agrawal discloses obtaining differences between the acquired performance parameters of the user and the performance parameters in the spatial performance model, so that their combination reaches the claimed subject matters in claims 17-18 and 37-38.

As discussed above, even if Challener and Rappaport are impermissibly combined, for the sake of argument, they fail to teach or suggest all claimed features of the present invention. For example, as discussed above, the claimed spatial performance model comprises a plurality of islands, each island shares the same performance characteristics. Neither Challener or Rappaport teaches or suggests such a spatial performance model. As for Agrawal, it fails to complement Challener and Rappaport to reach the claimed subject matters in claims 1 or 34; therefore, by law, claims 17-18 and 37-38 dependent from claims 1 or 34 respectively are not unpatentable over Challener in view Rappaport and further in view of Agrawal.

Conclusion

Claims 15, 17, 18, 23, 27-31, 33, 34, 37, 38, 41, and 43-49 are in condition for allowance. Therefore, Applicant respectfully requests that the rejection to Claims 15, 17, 18, 23, 27-31, 33, 34, 37, 38, 41, and 43-49 under 35 U.S.C. 103(a) be withdrawn.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Respectfully submitted,
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